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Response under 37 C.F.R. § 1.116  
Expedited Procedure  
Examining Group 2675



PATENT  
Attorney Docket No. 049128-5040

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Yong Sung HAM ) Confirmation No.: 2255  
Application No.: 10/001,787 ) Group Art Unit: 2675  
Filed: December 5, 2001 ) Examiner: D. Chow  
For: METHOD AND APPARATUS FOR )  
DRIVING LIQUID CRYSTAL DISPLAY )

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Sir:

**RESPONSE AND REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. § 1.116**

In response to the Final Office Action dated April 30, 2004 (Paper No. 5), the period for response to which extends through July 30, 2004, favorable reconsideration and allowance of the subject application are respectfully requested in view of the following remarks.

**Summary of the Office Action**

Claims 1-3, 6, 11-13 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Johnson et al.* (WO 99/05567) in view of *Usui et al.* (U.S. Patent No. 5,844,533).

Claims 4, 5, 7-10, 14, 15 and 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

### Summary of the Response to the Office Action

No changes to the claims have been proposed by this response. Claims 1-20 remain currently pending.

### The Disposition of the Claims

Applicant appreciates the Examiner's indication that claims 4, 5, 7-10, 14, 15 and 17-20 would be allowable if rewritten in independent form as noted at paragraph 3 of the Office Action.

In addition, claims 1-3, 6, 11-13 and 16 also are believed to be allowable for at least the following reasons.

### Claim Rejection Under 35 U.S.C. §103(a)

Claims 1-3, 6, 11-13 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Johnson et al.* in view of *Usui et al.* This rejection is respectfully traversed for at least the following reasons.

The Final Office Action asserts that the "Old Data<sub>in</sub>," as taught by *Johnson et al.*, corresponds to the first modulated data set in advance, as set forth in Applicant's independent claims 1 and 11. In particular, the Final Office Action asserts that "Johnson teaches the modulation means includes an input means for inputting old data (first modulated data which was set in advance) and new data (input data) into a LUT (33) which determines modulation data." Page 4, lines 2-4 of the Final Office Action. However, as shown to the right in FIG. 7 of *Johnson et al.*, the "Old Data<sub>in</sub>" is merely applied to a delay circuit (32) to be a delay time of one field time. Also, see,

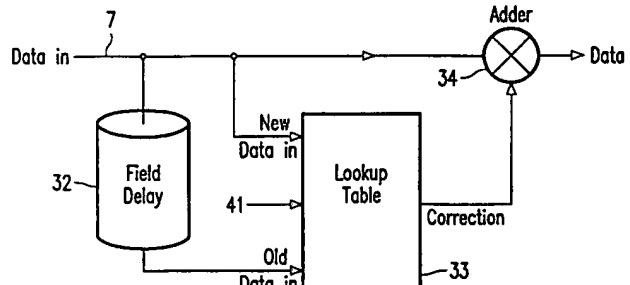


FIG. 7

for example, page 6, line 25 of *Johnson et al.* Thus, the “Old Data<sub>in</sub>” of *Johnson et al.* is not modulated data and the value of the “Old Data<sub>in</sub>” is not modulated or corrected by the delay circuit (32) before being inputted to the LUT (33). In fact, *Johnson et al.* discloses, at page 6, line 29 - page 7 line 1, that “[t]he delayed information from the previous field (Old Data<sub>in</sub>) and the changed information (New Data<sub>in</sub>) jointly address the LUT 33 which determines the correction....In the adder 34, this correction is added to the changed information (New Data<sub>in</sub>). The data thus determined is supplied to the column electrodes 4.” That is, the modulation of *Johnson et al.* at most determines one modulated data, i.e., “Data” outputted from the adder (34) as shown in FIG. 7 of *Johnson et al.* In addition, no portion of *Johnson et al.*’s disclosure discusses first and second modulated data. Accordingly, Applicant respectfully submits that the device of *Johnson et al.* fails to teach or suggest, *inter alia*, the first and second modulated data, as set forth in Applicant’s independent claims 1 and 11.

Similarly, *Usui et al.* also at most discloses determining one modulated data. The Final Office Action cites column 17, lines 57-65 of *Usui et al.* and asserts that “Usui teaches using a calculator circuit including a subtraction circuit for calculating a difference between old data and new data.” Page 4, lines 6-8 of the Final Office Action. However, *Usui et al.* merely discloses, at column 17, lines 57-65, that “[t]he comparator 322 subtracts image data in the previous frame at the input terminal V from the current image data at the input terminal U. The comparator 322 then sends a gray scale difference signal as the result of the comparison from an output terminal R.” That is, the comparator (322) of *Usui et al.* calculates a difference between the current and previous frame data. However, *Usui et al.*’s comparator (322) does not calculate a difference between a first modulated data and input data. In addition, no portion of *Usui et al.*’s disclosure discusses first and second modulated data. Accordingly, Applicant respectfully submits that the

device of *Usui et al.* also fails to teach or suggest the first and second modulated data, as set forth in Applicant's independent claims 1 and 11.

Accordingly, Applicant respectfully submits that neither *Johnson et al.* nor *Usui et al.* teaches or suggests the claimed combination as set forth in independent claim 1 including at least "setting first modulated data in advance in the liquid crystal display," "calculating a difference between the first modulated data and input data," and "modulating the input data by using the calculated difference to output second modulated data." In addition, Applicant respectfully submits that neither *Johnson et al.* nor *Usui et al.* teaches or suggests the claimed combination as set forth in independent claim 11 including at least "a modulator modulating the input data by using subtracted data between first modulated data set in advance and the input data from the input line to output second modulated data."

M.P.E.P. §2143.03 instructs that "[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." Since, in view of the above, *Johnson et al.* and *Usui et al.*, whether taken separately or in combination, fail to teach or suggest each and every element set forth in independent claims 1 and 11, it is respectfully submitted that *Johnson et al.* in view of *Usui et al.* do not render claims 1 and 11 unpatentable. Further, since claims 2, 3, 6, 12, 13 and 16 depend from claims 1 and 11, it is respectfully submitted that *Johnson et al.* in view of *Usui et al.* also do not render claims 2, 3, 6, 12, 13 and 16 unpatentable. Accordingly, withdrawal of the rejection of claims 1-3, 6, 11-13 and 16 under 35 U.S.C. §103(a) is respectfully requested.

**Conclusion**

In view of the foregoing, withdrawal of the rejections and allowance of the pending claims are earnestly solicited. Should there remain any questions or comments regarding this response or the application in general, the Examiner is urged to contact the undersigned at the number listed below.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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Dated: June 14, 2004

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